

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (canceled), (withdrawn), (new), (previously presented), or (not entered).

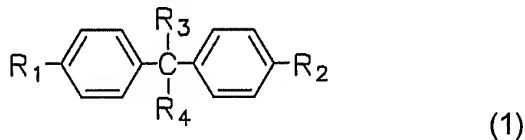
The claims are not amended herein.

1. (PREVIOUSLY PRESENTED) A non-aqueous electrolyte of a lithium secondary battery, comprising:

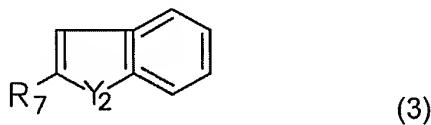
a lithium salt;

an organic solvent; and

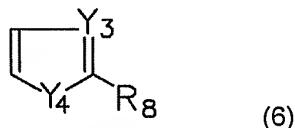
at least one additive compound substantially in an amount of 0.01 to 10 wt%, based on a total weight of electrolyte and selected from the group consisting of compounds represented by the following formulas (1), (3) and (6):



where R₁ and R₂ are independently selected from the group consisting of a hydroxy, a C₁ to C₆ alkoxy, a C₂ to C₆ alkenyl, a C₁ to C₆ alkoxy substituted with a halogen, and a C₂ to C₆ alkenyl substituted with a halogen; and R₃ and R₄ are independently selected from the group consisting of a C₁ to C₆ alkyl and a C₆ to C₁₂ aryl;



where Y₂ is selected from the group consisting of O, N, and S, and R₇ is selected from the group consisting of hydrogen, a C₁ to C₆ alkyl, a C₁ to C₆ alkoxy, a C₂ to C₆ alkenyl, and a C₆ to C₁₂ aryl; and



where Y₃ is selected from the group consisting of N, O, and S, Y₄ is NR' (where R' is selected

from the group consisting of hydrogen, a C₁ to C₆ alkyl, O, and NH, and R₈ is selected from the group consisting of hydrogen, a C₁ to C₆ alkyl, a C₁ to C₆ alkoxy, a C₂ to C₆ alkenyl, a C₆ to C₁₂ aryl, and an acetyl.

2. (PREVIOUSLY PRESENTED) A non-aqueous electrolyte of a lithium secondary battery, comprising:

a lithium salt;

an organic solvent; and

at least one additive compound selected from the group consisting of bisphenol A, 1-(phenylsulfonyl) pyrrole, 2,3-benzofuran, 2-butylbenzofuran, thianaphthene, and 2-methyl imidazole,

wherein the additive compound is used substantially in an amount of 0.01 to 10 wt%, based on a total weight of electrolyte.

3. (CANCELED)

4. (PREVIOUSLY PRESENTED) The non-aqueous electrolyte of a lithium secondary battery according to claim 1, wherein the additive compound is used substantially in an amount of 0.01 to 5 wt%, based on a total weight of electrolyte.

5. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 4, wherein the additive compound is used substantially in an amount of 0.01 to 1 wt%, based on a total weight of electrolyte.

6. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 5, wherein the additive compound is used substantially in an amount of 0.01 to 0.5 wt%, based on a total weight of electrolyte.

7. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 1, wherein the additive compound forms a passivation layer on a surface of a positive electrode.

8. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery

according to claim 1, wherein the lithium salt is at least one selected from the group consisting of LiPF₆, LiBF₄, LiSbF₆, LiAsF₆, LiClO₄, LiCF₃SO₃, Li(CF₃SO₂)₂N, LiC₄F₉SO₃, LiSbF₆, LiAlO₄, LiAlCl₄, LiN(C_xF_{2x+1}SO₂)(C_yF_{2y+1}SO₂) (wherein x and y are natural numbers), LiCl, and LiI.

9. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 8, wherein the lithium salt is used substantially at a concentration in the range of 0.6 to 2.0 M.

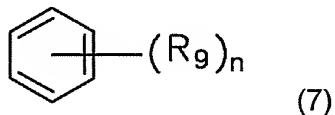
10. (PREVIOUSLY PRESENTED) The non-aqueous electrolyte of a lithium secondary battery according to claim 1, wherein the organic solvent is at least one non-aqueous organic solvent selected from the group consisting of a carbonate, an ester, an ether, and a ketone.

11. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 10, wherein the carbonate is selected from the group consisting of dimethyl carbonate (DMC), diethyl carbonate (DEC), dipropyl carbonate (DPC), methylpropyl carbonate (MPC), ethylpropyl carbonate (EPC), methylethyl carbonate (MEC), ethylene carbonate (EC), propylene carbonate (PC), and butylene carbonate (BC).

12. (ORIGINAL) The non-aqueous electrolyte of a lithium secondary battery according to claim 10, wherein the carbonate is a mixed solvent of a cyclic carbonate and a chain carbonate.

13. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 1, wherein the organic solvent comprises a mixed solvent of a carbonate solvent and an aromatic hydrocarbon solvent.

14. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 13, wherein the aromatic hydrocarbon solvent is a compound of Formula (7):



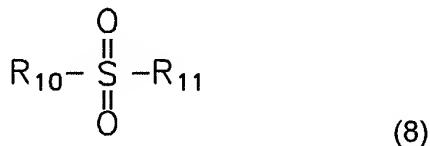
where R₉ is selected from a group consisting of a halogen, and a C₁ to C₁₀ alkyl, and n is an integer of 1 to 6.

15. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 13, wherein the aromatic hydrocarbon solvent is at least one selected from the group consisting of benzene, fluorobenzene, toluene, trifluorotoluene, xylene, and mixtures thereof.

16. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 13, wherein the carbonate solvent and the aromatic hydrocarbon solvent are mixed in a volume ratio of 1:1 to 30:1.

17. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 1, wherein the electrolyte further comprises an organic sulfone-based compound.

18. (WITHDRAWN) The non-aqueous electrolyte of a lithium secondary battery according to claim 17, wherein the organic sulfone-based compound is represented by the following formula (8):



where R_{10} and R_{11} are independently selected from the group consisting of a primary alkyl group, a secondary alkyl group, a tertiary alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, or R_{10} and R_{11} are bound together to form a cyclic ring.

19. (WITHDRAWN) The non-aqueous electrolyte for a lithium secondary battery according to claim 18, wherein either of R_{10} or R_{11} is substantially vinyl.

20. (WITHDRAWN) The non-aqueous electrolyte for a lithium secondary battery according to claim 17, wherein the organic sulfone-based compound is used substantially in an amount of 0.01 to 5 wt% based on a total weight of electrolyte.

21. (PREVIOUSLY PRESENTED) A non-aqueous electrolyte of a lithium secondary battery, comprising:

a lithium salt; an organic solvent; and at least one additive compound selected from the group consisting of bisphenol A, 2-butylbenzofuran and thianaphthene, wherein the additive compound is used substantially in an amount of 0.01 to 10 wt%, based on a total weight of electrolyte.

22 - 48. (CANCELED)